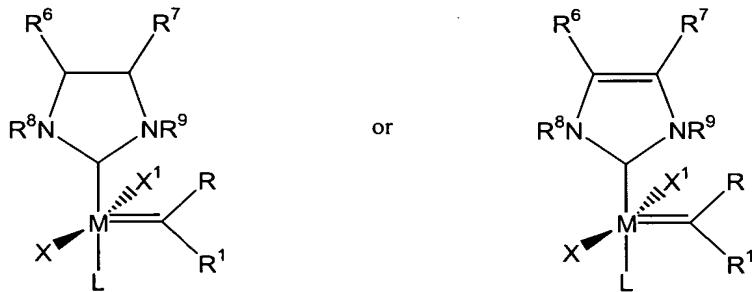


ABSTRACT

The invention is directed to the cross-metathesis and ring-closing metathesis reactions
5 between geminal disubstituted olefins and terminal olefins, wherein the reaction employs
a Ruthenium or Osmium metal carbene complex. Specifically, the invention relates to the
synthesis of α -functionalized or unfunctionalized olefins via intermolecular cross-
metathesis and intramolecular ring-closing metathesis using a ruthenium alkylidene
complex. The catalysts preferably used in the invention are of the general formula

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wherein:

15 M is ruthenium or osmium;

X and X¹ are each independently an anionic ligand;

L is a neutral electron donor ligand; and,

20 R, R¹, R⁶, R⁷, R⁸, and R⁹ are each independently hydrogen or a substituent selected
from the group consisting of C₁-C₂₀ alkyl, C₂-C₂₀ alkenyl, C₂-C₂₀ alkynyl, aryl, C₁-C₂₀
carboxylate, C₁-C₂₀ alkoxy, C₂-C₂₀ alkenyloxy, C₂-C₂₀ alkynyoxy, aryloxy, C₂-C₂₀
alkoxycarbonyl, C₁-C₂₀ alkylthio, C₁-C₂₀ alkylsulfonyl and C₁-C₂₀ alkylsulfinyl.

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